

AD-A253 148



(Unclassified Paper)

NAVAL WAR COLLEGE
Newport, R.I.



The Evolution of the Operational
Level of Warfare

by

Robert E. Smith
CDR USN

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: 

5 June 1992

Paper directed by
CAPT H.W. Clark, Jr. USN
Chairman, Department of Operations

92 7 27 108



REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b RESTRICTIVE MARKINGS	
2a SECURITY CLASSIFICATION AUTHORITY DECLASSIFICATION/DOWNGRADING SCHEDULE		3 DISTRIBUTION/AVAILABILITY OF REPORT DISTRIBUTION STATEMENT A: Approval for Public Release; distribution is unlimited.	
4 PERFORMING ORGANIZATION REPORT NUMBER(S)		5 MONITORING ORGANIZATION REPORT NUMBER(S)	
6a NAME OF PERFORMING ORGANIZATION OPERATIONS DEPARTMENT	6b OFFICE SYMBOL (If applicable) C	7a NAME OF MONITORING ORGANIZATION	
6c ADDRESS (City, State, and ZIP Code) NAVAL WAR COLLEGE NEWPORT, R.I. 02841		7b ADDRESS (City, State, and ZIP Code)	
8a NAME OF FUNDING/SPONSORING ORGANIZATION	8b OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c ADDRESS (City, State, and ZIP Code)		10 SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) THE EVOLUTION OF THE OPERATIONAL LEVEL OF WARFARE (U)			
12. PERSONAL AUTHOR(S) ROBERT E. SMITH CDR, USN			
13a TYPE OF REPORT FINAL	13b TIME COVERED FROM TO	14. DATE OF 1992, JUNE, 05	15 PAGE COUNT 36
16 SUPPLEMENTARY NOTATION A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.			
17 COSATI CODES		18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	OPERATIONAL, EVOLUTION, WARFARE, HISTORICAL, LEVEL OF WARFARE,	
19. ABSTRACT The concept of the Operational Level of War has gained currency in the U.S. military during the past ten years. Since the era of Napoleon, however, The Operational Level of Warfare has been identifiable as a distinct level in the spectrum of warfare bridging the continuum from tactics to strategy. This paper reviews the definition of the Operational Level of Warfare and the characteristics which identify that level. It next proceeds to examine the evolution of the identifying characteristics of the Operational Level during the nineteenth century. In reviewing that evolution in terms of time and space and command, the elements of mass armies, conscription, logistics, and the impact of technology are reviewed. The Napoleonic wars, the American Civil War, the wars of German Unification and the Russo-Japanese War provide case studies for this review.			
20 DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a NAME OF RESPONSIBLE INDIVIDUAL HAIRMAN, OPERATIONS DEPARTMENT		22b TELEPHONE (Include Area Code) 841-3414	22c OFFICE SYMBOL C

DD FORM 1473, 84 MAR

83 APR edition may be used until exhausted
All other editions are obsolete

SECURITY CLASSIFICATION OF THIS PAGE

U.S. Government Printing Office: 1989-639-018

0102-LF-014-6602

Reproduced From
Best Available Copy

TABLE OF CONTENTS

ABSTRACT

CHAPTER I	INTRODUCTION	1
CHAPTER II	THE OPERATIONAL LEVEL OF WAR	4
CHAPTER III	TIME AND SPACE	6
CHAPTER IV	THE GROWTH OF ARMIES	8
	Conscription	10
	Logistics	11
CHAPTER V	COMMAND	15
CHAPTER VI	THE IMPACT OF TECHNOLOGY	19
	The Railroads	20
	Railroads in the American Civil War	22
	The Russo-Japanese War	25
CHAPTER VII	CONCLUSION	27
ENDNOTES	30
BIBLIOGRAPHY	33

DTIC QUALITY INSPECTED 4

Accession For	
DTIC GRA&I	<input checked="" type="checkbox"/>
DTIC FAR	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

Abstract of
The Evolution of the Operational
Level of War

The concept of the Operational Level of War has gained currency in the U.S. military during the past ten years. Since the era of Napoleon, however, The Operational Level of Warfare has been identifiable as a distinct level in the spectrum of warfare, bridging the continuum from tactics to strategy. This paper reviews the definition of the Operational Level of Warfare and the characteristics which identify that level. It next proceeds to examine the evolution of the identifying characteristics of the Operational Level during the nineteenth century. In reviewing that evolution in terms of time and space and command, the elements of mass armies, conscription, logistics, and the impact of technology are reviewed. The Napoleonic wars, the American Civil War, the wars of German Unification and the Russo-Japanese War provide case studies for this review.

CHAPTER I

INTRODUCTION

The Operational Level of War as a term denoting a specific stratum in the continuum of conflict has gained recent credibility in the United States military. Belatedly, in the view of one critic who notes that Anglo-Saxon military terminology knows, "...of *tactics*...and of *theater strategy* as well as of *grand strategy*, but includes no adequate term for the *operational* level of warfare-precisely the level that is most salient in the modern tradition of military thought in continental Europe."¹

Formalized through official definition and extensively analyzed in the context of today's military environment, the Operational Level of War forms (or should form) the focus of effort of a considerable portion of senior military officers. General George S. Patton summarized his view of that focus in stating that, "I know that no general officer and practically no colonel needs to know any tactics. The tactics belong to the battalion commander."²

General Patton's view, expanded in scope to include staff officers serving the general officers he speaks of, sets an institutional context for the Operational Level of War. Noted as being one of the few U.S. officers (among whom Douglas MacArthur is included) to possess a sense of the Operational Level, Patton was a harbinger of a revised view that today is being expanded within the U.S. military.

To contribute to the increasing understanding of warfare at the Operational Level, I propose in this paper to establish a historical basis from which the reader may view the evolution of the Operational Level of Warfare. Within any definition of the subject a number of criteria which characterize warfare at this level are common. It can be shown that each of these criteria, or elements which contribute to the Operational Level, has evolved over time and for several reasons. It will also become apparent that no single criteria evolved independently of others but rather that the whole complex web is interdependent. In its most refined form the Operational Level of Warfare consists of a synergy of its parts, brought together with a genius and efficiency which has made its exploitation uniquely successful against less enlightened opponents.

Land warfare of the nineteenth century, primarily (yet not exclusively) in a European context, serves as the focus of this review for several reasons. First, and foremost, because warfare on a European model has endured. Despite the prevalence of conflict characterized as low intensity, insurgent or revolutionary and based in part on the theories of non-European masters, European standards of warfare, from weapon systems, to doctrine, to moral and ethical standards are increasing in currency and will continue to do so. Indeed, one of the cases examined in this paper, the Russo-Japanese War of 1904-5 demonstrated to awed spectators the impact of

adoption of European methods by an Asian nation, some of whose warriors had begun their careers wearing armor and wielding medieval weapons.³

The nineteenth century, again in Europe, represents that period in history during which the elements of the Operational Level of War received the impetus critical to their evolution, through numerous influences in the social, economic, technological and intellectual environment in which war is but a single, dramatic contributor. While the history of warfare prior to 1800 is by no means irrelevant, those elements of the Operational Level which are identifiable in man's earlier conflicts only achieved their synergistic dynamism in nineteenth century, Euro-centered culture. Finally, the examination of nineteenth century conflict remains relevant in the late twentieth century because today's warriors and the populations they serve are inheritors of a geo-political context which emerged in the nation states of North America and Europe and which continues to exert dominant influence over the globe after two centuries.

CHAPTER II

THE OPERATIONAL LEVEL OF WAR

The Operational Level of War has only been recognized as a distinct strata in the spectrum of conflict in relatively recent times. That this is so is not to deny the existence of a level of conflict between strategy and tactics. Rather, recent discussion of the Operational Level reflects first, an intellectual debate over what to call and how to bound that phenomenon and second, the fact that until less than two hundred years ago one would have been hard pressed to recognize that level using the criteria by which today's conflicts may be analyzed.

It is of some assistance to note what the Operational Level of War is not. 'In theater strategy, political goals and constraints on one hand and available resources on the other determine projected outcomes. At a much lower level, tactics deal with specific techniques.' ⁴ The Operational Level bridges the gap between strategy and tactics, thus permitting the designs dictated by strategy to be effected at the tactical level and, in particular, '... the concerted use of tactical means to achieve operational level results that are much more than the sum of the (tactical) parts.' ⁵ The Operational Level of War then, is the level of synchronization of military activities in a theater of war, over time and space, to achieve objectives which will contribute to the theater strategy. Other writers have derived varying

definitions but all are similar in certain critical respects. It is these common threads which provide the several identifying features on which a historical review of the subject may focus.

To establish a framework in which to examine the characteristics of the Operational Level it may be useful to group those characteristics under two headings implied by the term's definition. In relating the Operational Level to a series of actions occurring in a theater of war or operations, the bounds of *time and space* are expanded beyond those of the tactical engagement. By implying the *generalship, planning and endurance* necessary to orchestrate related actions over time and a large area, the critical element of *command* becomes the second dominant theme of the Operational Level. Other criteria, although important individually, may be seen as contributing to one or both of the two themes of time and space and command. The evolving characteristics of warfare which expanded the elements of time and space are the dominant subjects of this study. As a major subject, worthy of its own study, the theme of Command, at the individual and staff levels, will be treated only insofar as it responded to factors of time and space.

CHAPTER III

TIME AND SPACE

If sheer magnitude were the governing criteria, then the Hundred Years War of the fourteenth and fifteenth centuries or the Thirty Years War of the seventeenth would meet the limits of our definition. The Crusades of the Middle Ages were likewise extensive in duration and extended their activity over vast areas of southeastern Europe, the Mediterranean and the Levant. Missing from these conflicts, however, were forces which first, attempted to establish some rational bounds to the time and space encompassed by conflict and second, whether those bounds were great or limited, did so for some considered purpose. That is, a strategic sense of what was to be accomplished in a given time and space.

In the American Civil War, the bloody stalemate of the first two years of the war might have continued for some time, given the South's vast area and essentially defensive posture and the North's lack of operational sophistication or coherent strategy. The theater of war was larger in extent than any seen in recent European history. Once, however, northern strategic purpose coalesced, operational coherence followed and the greater potential capability of the Union was brought effectively to bear. As a result, the vast area of the South was no longer an obstacle of insurmountable proportion and the duration of the war could be roughly calculated by charting the movements of northern forces to eventual confluence at

Richmond. By recognizing that the Confederacy west of the Mississippi was unimportant to his effort and isolating that region by controlling the river, Grant was able to focus his effort on the South's political and moral heart.

A sense of the time and space necessary to the execution of operations is of little value, however, without the means to implement the commander's vision. The nineteenth century witnessed two great changes which were to have dramatic impact on the factor of time and space. The first factor in the expanded scope of warfare to be considered is the dramatic growth in the absolute size of armies. The second factor is the technological revolution of that century, spurred not by military influences but by the scientific, economic, and industrial impulses of the generations inheriting the forward looking views of the Enlightenment.

CHAPTER IV

THE GROWTH OF ARMIES

The rapid growth in the size of armed forces from the end of the eighteenth century both permitted the full development of the Operational Level of Warfare and made that development absolutely necessary. The expansion of the scope of warfare in time and space could not have occurred without the raw resource, manpower, necessary to sustain warfare over an extended time and an expanded theater of operations. While to examine the growth of armies in size alone would serve to oversimplify the subject, that fact may be viewed as a cornerstone upon which the Operational Level of Warfare was developed.

'Very seldom did eighteenth-century commanders operate with armies in excess of 80,000 men.'⁶ In 1812, Napoleon led an army of 600,000 men into Russia. 'In 1870 the German Confederation deployed against France exactly twice the number of men Napoleon had led into Russia...by 1914 the German figure had again doubled, to 3,400,000 men.'⁷ At the Battle of Yorktown, Washington commanded a force of 16,000 Allied soldiers. Eighty three years later, General Sherman, in preparation for his advance on Atlanta, assembled three armies totalling about 180,000 men. To accommodate garrison forces and to secure his lines of supply, Sherman prepared, '...a compact army for active operations in Georgia, of about the following numbers:

Army of the Cumberland.....	50,000
Army of the Tennessee.....	35,000
Army of the Ohio.....	<u>15,000</u>
Total.....	100,000 ⁸

The Russo-Japanese war did not witness the total mobilization of society that was to occur ten years later and yet the armies assembled in that conflict, and their losses, are impressive for the scale of operations. Japan mustered a total of approximately 850,000 troops in the theater, of whom roughly 265,000 were committed to action in the war. This number was drawn from a conscript base of four and one-quarter million men.⁹ Russia, on the other hand, had a combatant force of some 83,350 men in the Manchurian Theater at the outbreak of war from a total armystrength of 4.5 million men.¹⁰ By the end of the war, Russia had transported nearly 1,000,000 men east to the Manchurian theater.¹¹

The size of armies may be partially explained by the explosion of population experienced in the nineteenth century. 'It has been estimated that in the 19th century the population of the world expanded more rapidly than in any previous period, from about 900 million to 1600 million...The population of Europe increased from 190 million to 423 million...and...In the three countries which were the leading industrial states in 1914-the United Kingdom, Germany and the United States-the population had increased nearly five-fold in the previous hundred years.'¹² The United States' population

had increased from 4 million to 31 million persons between 1790 and 1860.¹³

Conscription

An expanded pool of manpower alone does not explain the vastly enlarged armies of the nineteenth century. After all, Napoleon's armies dwarfed those of his immediate predecessors even before the population explosion of the nineteenth century occurred. Conscription was the action which took armed forces from the era of Frederick the Great to the era of Napoleon. War was no longer the business solely of princes, but of nations. The *levee en masse* of 1792 mobilized the manpower of France out of loyalty to the Republic and was only later exploited to great effect by Napoleon. Conscription in Germany was justified along similar, nationalistic lines and in the United States a grave threat to the survival of the nation allowed a system of conscription to exist briefly during the Civil War. In Japan conscription, introduced in 1871, was an essential step in the rapid transformation of that nation from a feudal society to a modern world power. 'Patriotism and loyalty to the sovereign were to replace the narrower forms of duty to the feudal lord ...' and that loyalty, '...built up by a thousand years of war, was to be diverted into broader channels, and one supreme form of national sentiment-obedience to the dictates of the Emperor-evolved.'¹⁴

Republic or Emperor, Czar or Fatherland, the recipient of national loyalties in the nineteenth century was provided

military forces unprecedented in their magnitude. The occasional brilliance of their commanders, the organizational skills of some staffs and the theories of Clausewitz and Jomini gave some degree of form and efficiency to the employment of these mass armies on the Operational Level.

Logistics

The ability to supply huge armies was as vital to their growth as was the size and motivation of the manpower pool. 'In the 18th century it was generally accepted that there was a strict limit to the size of armies that could usefully be deployed in the field-a limit fixed by problems of supply.'¹⁵ The armies of France overturned this notion as with so many others, but in the end demonstrated that the limits of supply continued to exist, albeit on a larger scale. Napoleon's armies, '...supplemented their regular supply sources by organized or unorganized pillage; but the disaster which overtook the armies...which Napoleon led into Russia in 1812 showed that even this ruthless improvization had its limits.'¹⁶ Population density did contribute to Napoleon's ability to supply and maneuver his armies. The nations of western and central Europe had grown by the early nineteenth century to the point where many regions could support armies, lessening dependence on magazines and supply convoys and making greater mobility possible.¹⁷ At the same time, Napoleon employed a system of lines of communication back to France more extensive than any previously attempted.¹⁸

Indeed, when considering Napoleon's contributions to the development of the Operational level, we should be careful not to dismiss his success in sustaining Europe's largest armies as consisting merely of a more successful pillaging technique than that of his opponents.

A preoccupation with the problem of supply also characterizes Sherman's description of his Georgia campaign. While having the advantage of the huge armies discussed above, "the great question of the campaign was one of supplies."¹⁹ The ultimate size of the army which Sherman felt he could sustain during his campaign, the number of forces assigned to secure his lines of supply, the number of engineer troops he brought into Georgia to restore (as well as destroy) railway lines, and even his decision to assume personal control of all railway operations in the western theater stemmed from Sherman's recognition of the supply requirements of his undertaking. That, and his recognition of the need for centralized control of his logistics.²⁰ As Napoleon found in Europe, so did Sherman find himself assisted by the relative population density of the region.

In Manchuria, a limiting factor in the scope of both Russian and Japanese actions was logistics in an environment which lent little organic support to armed forces. "The Japanese supply system was better organized than the Russian and enjoyed the additional benefit of a short line of communication."²¹ Despite advantages, the Japanese supply

system experienced difficulty maintaining pace with the armies. The official British history of the war cites more than one instance when a shortage of ammunition was a limiting factor in battle.²² Russian forces in the Far East were ill prepared at the outbreak of war, with logistic support suffering the ills of the Russian system. 'Official corruption was responsible for much of this unreadiness, government contracts being regarded as sources of private gain.'²³

The ultimate contribution of logistics to the development of the Operational Level of War is a matter of debate only by those who ignore that discipline, to their eventual peril. In ON WAR, Clausewitz distinguished between the Operational and Logistical dimensions of warfare,²⁴ and is criticized for the form of that distinction by his modern translator. For one reason, Clausewitz's most admired commanders, Napoleon and Frederick the Great, '...could never have achieved their operational triumphs if they had not had a profound understanding of the whole range of military activities that Clausewitz excluded from consideration.'²⁵ As a second criticism, it is pointed out that, '...no campaign can be understood, and no valid conclusions drawn from it, unless its logistical problems are studied as thoroughly as the course of operations.'²⁶ Perhaps Clausewitz is misunderstood as a result of his free and frequent migrations along the operational spectrum from the tactical level to the strategic. When sometimes discussing those activities which would be

called tactical actions by today's definitions, logistics do truly become secondary to the act of combat on the battlefield. Again, at the highest levels of strategy, logistics is of diminished importance with regard to the proper alignment of political goals and military objectives. Only when the objective is passed to the operational commander does it become absolutely vital to examine the resource base with which to achieve that objective.

CHAPTER V

COMMAND

Effective command of the vast armies of the nineteenth century, over theaters as vast as Europe, required not merely evolution, but revolution in the art of command. While certain functions, such as logistics, required concentration under one authority, warfare evolved beyond the days when the ruler and commander, as one, could encompass every endeavor in his person. Napoleon, of course, receives rightful credit for the revolution in command, but the organization of France's armies into corps' preceded Bonaparte's rise to prominence, occurring first in 1794.²⁷ The organization of the army into smaller corps' transformed an awkward mass into what, in proper hands, became a flexible and devastating tool. "Perhaps the most important single characteristic of the new corps, and one that was critical in making the revolution in command possible, was their sheer size."²⁸ A corps of 20,000 to 30,000 men, containing units of all arms and provided with its own staff, was a small army. Such a unit could not, in theory, be overrun in one afternoon, and the day or two required would provide sufficient time for assistance from other corps' to arrive. And all was coordinated in response to a single design, that of the commander-in-chief.²⁹

Thus through sheer numbers and their organization, a nation's army would be capable of absorbing the loss of a battle without losing the war. If, that is, command of that

army could duplicate the feats of Napoleon in his prime. After it's evolution in the Napoleonic era, the corps became a central organizational unit of western armies and a key component of the Operational Level of Warfare, remaining so until the present.

The organization of mass armies into corps permitted their movement and activity over larger areas than previously possible. To control those forces, even given the genius of a Napoleon, required the development of the commander's staff. No longer able to view the activities of his army in one gaze, the commander became reliant on the eyes, ears and reports of others. From the 1600's onward, the post of Quartermaster General led the evolution of a staff concept whereby the commander's effective control relied, in part, on reports or even decisions of others.

In the eighteenth century, the element of command was in transition. 'On the one hand, there persisted the tendency to concentrate all intelligence and operational matters in the hands of the commander in chief...' ³⁰ In fact, a study of Napoleon's methods reveals that, despite the sophistication of his staff organization, the Emperor himself did his own operational planning, in relative isolation. But even Napoleon found it necessary to decentralize to a degree. The balance of effort he established has been identified by four principles. First, as has been noted, was the corps organization. Next, institution of a system of regular reports from the corps

level to the general headquarters and in reverse for the passing of orders formalized the operational chain of command. Third, the development of a headquarters staff was necessary, able to deal with the quantity of correspondence thus generated. And finally, to prevent himself from becoming a prisoner of the staff thus developed, Napoleon utilized an informal system of aides as a directed telescope, to cut through the formal hierarchy and observe any part of the army or obtain information he desired at any time.³¹

Following the French example, and in response to the obvious needs of the Operational Level, the formalization of staff functions at the level of the Prussian General Staff was the next logical step. Advances in communications technology, the telegraph and then the telephone, facilitated this development. In recognition of the fact that a talent such as Napoleon's would not likely reappear, the institutionalization of excellence became the hallmark of the Prussian model.

Staff development never led the evolution of the Operational Level, however, but sometimes grudgingly evolved in response to it. In the United States, no organization to compare with the Prussian staff evolved, despite the magnitude and complexity of the Civil War. It's formal status, the stature of Helmuth von Moltke, and the complexity of it's deployment plans notwithstanding, the Prussian General Staff did not receive true operational authority until 1866. Then, immediately before the outbreak of war with Austria, the

Chief of the General Staff was authorized to issue orders directly to subordinate units in the Prussian Army, without the delay of getting the approval of either King or War Minister. - 32

Finally, the course of the Russo-Japanese War pointed out the deficiencies of the bureaucratic Russian organization. The Japanese, on the other hand, developed their armies on the Prussian model and proved efficient in matters of transport, deployment and operational planning. In the continued tradition of an earlier era, however, Japan deployed four armies into Korea and Manchuria with each acting as an independent unit in the theater. It was five months after the outbreak of the war when Marshall Oyama, who had been an observer with the Prussians in the Franco-Prussian War, arrived to take overall command of the theater, as, "...by this time, with four armies operating separately, some coordination was needed." 33

CHAPTER VI

THE IMPACT OF TECHNOLOGY

The final factor to be considered with regard to time and space at the Operational Level is the impact of technology. The advances of the nineteenth century changed forever the nature of warfare, in ways not even Clausewitz envisioned just several years before the first use of the railroad for troop transport. Yet, while clearly making a significant impact on the Operational Level of Warfare, the influence of technology should neither be overrated nor reduced to the level of tactical innovation for the purposes of this discussion.

Napoleon achieved his success without benefit of the railway or telegraph, although as with all the resources at his disposal, he made masterful use of what technology did offer. The extensive network of royal mail service, initiated in the eighteenth century and expanded under Napoleon, "...enabled information to travel, by Napoleon's own estimate, twice as fast as it had in Caesar's day."³⁴ Throughout Europe, construction of new roads and canals facilitated travel, and of course the movement of troops, and in many places made parallel roads available for the first time.³⁵ But, Napoleon was unique, achieving success under the same constraints of horsepower and handwritten orders as were faced by his opponents, thus making his contribution to the

Operational Art more significant than had he had a technological edge at his disposal.

When considering technology's contribution to the Operational Level of War it is important also to avoid the narrow perspective of the needle gun and other such tactical innovations. 'No modern war has been won (or lost) by technological superiority (or inferiority) alone'.³⁶ The fleeting advantage of a technological advance at the tactical level may have devastating impact on the individual battlefield but is significant in the Operational context only if exploited through superior planning and doctrine.³⁷

The Railroad

At the Operational Level, the introduction of the railroad and its exploitation by the military altered forever the bounds of time and space. The mobility of forces was no longer subject at all times to the speed or endurance of the horse or marching infantry. And, 'speed of movement was indeed only one of the military advantages conferred by the railway. No less important was the staying power it gave to armies in the field.'³⁸

Recognition of the importance of rail transport to mobility and logistic support was not universal nor was development of rail capability consistent through the nineteenth century. Spurred by commercial interest rather than by military considerations, railways led to adaptation by the military and not the reverse. That is, until the influence of

Helmuth von Moltke, who served on the board of the Berlin-Hamburg line in the 1840's, began to be seen in Prussian military planning. The first war in Europe to demonstrate the value of railways was that fought between France and the Austrian Empire in northern Italy in 1859...³⁹ and the lessons were not lost on von Moltke. "...A French force 120,000 strong, which would have taken two months to march the distance, reached the theatre of operations in eleven days."⁴⁰ Prussia had mobilized forces during the conflict as well and, although they were not deployed to the frontier, the deficiencies of the German rail network were vividly clear to von Moltke. First, he noted, most German rail lines were single tracked, slowing considerably any deployment to the western frontier. Second, the level of development of the network would not permit the movement of individual corps over dedicated routes, without interference from other force movements.⁴¹ Beyond noting the apparent deficiencies of German rail lines, von Moltke dispatched, "...officers to France to determine the organization and capabilities of its railway system."⁴² His studies and subsequent efforts to increase the military potential of Prussia's transportation network were accompanied by von Moltke's encouragement of the development of common doctrine on the military use of railways within the German Confederation.⁴³ As a result, "...it was to be the economic and military power of Prussia, whose sprawling territories in the center of Europe could now be effectively

linked together by a railway network, that was to benefit most from the new transport system.' ⁴⁴

Railroads in the American Civil War

Prussia's employment of her upgraded railroads in wartime was preceded, however, by the American Civil War. That war, perhaps better than any other of its century, demonstrates the expanded bounds of time and space and the impact of warfare at the Operational Level. As noted previously, the theater of war in North America was larger than any European theater to date. One writer notes that given that it took Napoleon eight years to reach the frontiers of czarist Russia, roughly the distance from Baton Rouge to Richmond, '...one should not be surprised that it took the North so long to conquer the South.' ⁴⁵

One major contributor to the North's success, and perhaps crucial to victory, was the steam engine - in the steamboat as well as the locomotive. ⁴⁶ While our primary concern is the impact of the railroad, the contribution of the steamship to land warfare at the Operational Level must be noted in the case of the Civil War, particularly in Grant's river campaigns in the West.

Experience in utilizing the railroad in warfare came hard to the North, as did much else in the first two years of war. Recognizing the strategic significance of the railways, however, the Federal Government, in an act of 31 January 1862, legislated two key actions. It first, '...set up the machinery for an agency to control the operations of captured Southern

railroads..." and second, "...gave the Government the authority to order the nation's railroads to transport troops and the necessities of war to the exclusion of all other business."⁴⁷ Organization and administration of the rail system proved difficult until the right man, Daniel C. McCallum was appointed, "...military director and superintendent of railroads...with authority to take possession of railroads, rolling stock, and equipment and to operate such lines required for the transport of troops, arms, ammunition, and military supplies."⁴⁸ This step was as significant to the Operational Level as was the influence of von Moltke on the German railroads. Instead of fragmented and competing control over rail lines and stock by the various military districts, control was, in theory at least, exercised at the theater level. The various armies retained a degree of authority over the rails in their districts, however, with less than desirable effects at the theater level. Commenting on General George Thomas, Sherman noted that, "he had so long exercised absolute command and control over the railroads in his department, that the other armies were jealous, and these thought the Army of the Cumberland got the lion's share of the supplies and other advantages of the railroads."⁴⁹ Finding merit in the complaints, Sherman, "...took supreme control of the roads myself, placed all the army commanders on an equal footing, and gave to each the same control, so far as

orders of transportation for men and stores were concerned.⁸⁰

By the middle of 1864, when Sherman began his drive toward Atlanta, federal control of the railroads had been turned, 'by McCallum into recognition of the importance of supply by rail to an army in the field...' ⁵¹ And the system's greatest test was to come under Sherman. Having recognized already the importance of logistics to his campaign, and having taken steps to ensure control and coordination of the railways in his theater, Sherman completed his march to Atlanta and onward with the security of his rail line foremost in his thoughts. In recounting the lessons of the war, Sherman noted that, '...that single stem of railroad, four hundred and seventy three miles long, supplied an army of one hundred thousand men and thirty five thousand animals for the period of one hundred and ninety-six days.' ⁵² By comparison, it was estimated that, lacking the rail line, 36,000 wagons, with six mules per wagon, would have been required to supply Sherman's forces, '...a simple impossibility in such roads as existed in that region.' ⁵³

While the American Civil War was in its last year, Prussia fought the Danish War of 1864, providing additional experience with and new lessons in the use of railways at the Operational Level. To the Prussian General Staff, the fighting in Denmark demonstrated, '...that the only way to overcome the firepower of breechloading rifles and rifled cannon was by

flank attacks and encircling operations.⁵⁴ The range of modern weapons and the size of armies no longer permitted significant flanking movements at the tactical level, however, and the solution lay at the Operational Level.⁵⁵ The railway would provide the means to that solution, and thus, apparently, originated the chain of thought culminating in the Schlieffen Plan.

The Russo-Japanese War

The American Civil War, the Austro-Prussian War and the Franco-Prussian war were fought in theaters with developed rail systems and, on the part of at least one belligerent in each case, by militaries which exploited the capabilities rail transport offered. The Russo-Japanese War was fought, ironically, because of the existence of a railway. Imperial Russia's eastward expansion became a clear threat to Japan's position in Asia when construction of the Trans-Siberian Railway linked European Russia with the Far East. Thus was formed a theater of conflict as a result of technological progress, coupled with expansionism by two nations.

A number of characteristics of the Russo-Japanese War make that event an interesting study in regional conflict from the operational perspective. Japanese planners have been criticized for pursuing two Russian centers of gravity, the Russian army and Port Arthur.⁵⁶ At the same time, Japanese recognition that Port Arthur was vital to control of the sea in the theater is noted as a commendable operational

insight.⁵⁷ The employment by both adversaries of tactics outdated in the face of modern weaponry proved tremendously costly in lives and a harbinger of the slaughter in Europe ten years hence. Lastly, the Trans-Siberian Railway both proved its worth to the Russian effort to reinforce the theater and was underestimated by the Japanese in its capability to move nearly 1,000,000 Russian soldiers to the front.

CHAPTER VII

CONCLUSION

Summarizing the elements that in the nineteenth century contributed to the Operational Level of Warfare returns this study to the twin themes of time and space and command. Warfare, as did population and the scope of man's vision, grew larger and the people who waged war were forced to expand their ability to manage that phenomenon. As throughout history, military men responded to events as much as they shaped them, but those who were most farsighted proved most successful. Napoleon did not so much create the new level of warfare as he utilized the resources available in his time to the greatest benefit. In one view, "...Napoleon's ultimate secret may have been that he made use of the economic and technological backwardness of his time in order to exercise command in the field, yet at the same time found ways to liberate strategy from the limitations imposed on it by that very same backwardness." 58

Yet even Napoleon exceeded his limitations, and others who belatedly applied his lessons ultimately defeated the master. By better applying their resources over time and space, the member states of the Final Coalition executed a series of actions culminating in attainment of their strategic objective; defeat of Napoleon in the field. Thus it was the coalition which, in the end, best fought at the Operational Level.

As this review of warfare in the nineteenth century progressed, it became apparent that little continuity in the evolution of the Operational Level of Warfare existed, but more a pattern of difficult grapplings with a phenomenon of warfare larger in scope than most could comprehend. Clausewitz attempted to analyze war, both in theory and in practice, but few practitioners heeded his work. Von Moltke may have been one who did, and in any event was eminently successful in planning and waging warfare at the Operational Level. Grant and Sherman were able commanders but contrastingly unable to prevent several years of slaughter to little operational purpose. In the American case, the element initially lacking in Union efforts was a clear strategic objective, without which the Operational Level of Warfare is incomplete.

The Russo-Japanese War demonstrated that, however well the lessons of the Operational Level were passed from the Prussians to the Japanese, evolution was not consistent in all aspects of warfare. While Japan's armies demonstrated skill at maneuver, deception, concentration and the use of tactical results as steps to their objectives, they also fought using tactics thirty years out of date. Their terrible losses would only have been greater had not the Russians employed tactics one hundred years out of date.

One element not discussed in detail herein, that of Communications, is given relatively less emphasis because of its later emergence as a significant factor. Also though, with

the exception of Sherman, most military leaders, Von Moltke in particular, seem to have been particularly unprepared to exploit the expanded capability offered by the telegraph and frequently bypassed that capability. Nonetheless, a more extensive study of the impact of communications on the evolution of the Operational Level would prove informative.

The mid point of the period encompassed by this study has offered the most illuminating examples of the themes of time and space and command. The great advances of the Operational Art in Prussia and in North America contain each of the elements reviewed herein. While the significance of Sherman's campaign in the deep South to Union victory is debatable, it's significance as an example of the Operational Level of Warfare is not. In his memoirs, Sherman summarized the elements discussed in this study (neglecting only his contribution to the art of command). 'Therefore, I reiterate that the Atlanta campaign was an impossibility without these railroads; and only then, because we had the men and means to maintain and defend them, in addition to what were necessary to overcome the enemy.' 59

ENDNOTES

1. Edward N. Luttwak, 'The Operational Level of War,' Edward N. Luttwak, ed., Strategy and History (New Brunswick, NJ: Transaction, 1985), p. 175.
2. George S. Patton, quoted in Strategic Studies Institute, The Operational Art of Warfare Across the Spectrum of Conflict (U.S. Army War College, 1987), p. 83.
3. J.N. Westwood, The Illustrated History of the Russo-Japanese War (London: Sidgwick & Jackson, 1973), p. 22.
4. Luttwak, p. 175.
5. Ibid., p. 177.
6. Michael Howard, War in European History (London: Oxford University Press, 1976), p. 99.
7. Ibid., p. 100.
8. W.T. Sherman, Memoirs of Gen. W.T. Sherman, Vol. II (New York: Charles L. Webster, 1891), p. 15.
9. R.M. Connaughton, The War of the Rising Sun and Tumbling Bear: A Military History of the Russo-Japanese War 1904-5 (London: Routledge, 1988), p. 13.
10. Historical Section of the Committee of Imperial Defence, Official History (Naval and Military) of the Russo-Japanese War, Vol. I (London: Harrison and Sons, 1910) p. 15.
11. Richard a. von Doenhoff, ed., The McCully Report: The Russo-Japanese War 1904-05 (Annapolis: Naval Institute Press, 1977), p. 243.
12. Norman Stone, ed., The Times Atlas of World History, 3rd ed. (Maplewood, NJ: Hammond, 1989), p. 208.
13. Mark S. Hoffman, The World Almanac and Book of Facts 1992 (New York: Phasor Books, 1991), p. 128.
14. Historical Section of the CID, p. 15.
15. Howard, War in European History, p. 99.
16. Ibid., p. 99.
17. Martin Van Creveld, Command in War (Cambridge, MA: Harvard University Press, 1985), p. 60.

18. Ibid., p. 59.
19. Sherman, p. 8.
20. Ibid., p. 9.
21. Connaughton, p. 15.
22. Historical Section of the CID, p. 450.
23. von Doenhoff, p. 243.
24. Michael Howard and Peter Paret, eds. On War (Princeton: Princeton University Press, 1976), p. 129.
25. Michael Howard, 'The Forgotten Dimensions of Strategy,' Foreign Affairs, Summer 1979, p. 976.
26. Ibid., p. 976.
27. Van Creveld, p. 60.
28. Ibid., p. 60.
29. Ibid., p. 60.
30. Ibid., pp. 38-39
31. Ibid., p. 97.
32. Trevor N. Dupuy, A Genius For War (Englewood Cliffs, NJ: Prentice-Hall, 1977; reprint ed., Fairfax, VA: Hero Books, 1984), p. 79.
33. Westwood, p. 51.
34. Van Creveld, p. 60.
35. Ibid., p. 60.
36. Michael Handel, 'Strategy and Technological Change,' Lecture, U.S. Naval war College, Newport RI: 6 January 1992.
37. Ibid.
38. Howard, War in European History, p. 98.
39. Ibid., p. 97.
40. Ibid., p. 97.

41. Dennis E. Showalter, Railroads and Rifles (Hamden, CT: Shoe String Press, 1976) p. 41.
42. Ibid., p. 42.
43. Ibid., p. 44.
44. Howard, War in European History, p. 97.
45. Williamson Murray, "What Took the North So Long," Robert Cowley, ed., Experience of War (New York: W.W. Norton, 1992), p. 179.
46. Ibid., pp. 179-180.
47. George B. Abdill, Civil War Railroads (Seattle: Superior Publishing, 1961), p. 9.
48. Ibid., p. 9.
49. Sherman, p. 9.
50. Ibid., p. 9.
51. Thomas Weber, The Northern Railroads in the Civil War 1861-1865 (New York: King's Crown Press, 1952), p. 207.
52. Sherman, p. 399.
53. Ibid., p. 399.
54. Showalter, p. 52.
55. Ibid., 52.
56. Historical Section of the CID, pp. 411-412; W.D. Bird, Lectures on the Strategy of the Russo-Japanese war (London: Hugh Rees, 1909), p. 65.
57. Ibid., p. 412; p. 66.
58. Van Creveld, p. 59.
59. Sherman, p. 399.

BIBLIOGRAPHY

- Abdill, George B. Civil War Railroads. Seattle: Superior Publishing, 1961.
- Bird, W.D. Lectures on the Strategy of the Russo-Japanese War. London: Hugh Rees, 1909.
- Connaughton, R.M. The War of the Rising Sun and Tumbling Bear: A Military History of the Russo-Japanese War 1904-5. London: Routledge, 1988.
- Cowley, Robert., ed. Experience of War. New York: W.W. Norton, 1992.
- Dupuy, Trevor N. A Genius For War. Englewood Cliffs, NJ: Prentice-Hall, 1977; reprint ed., Fairfax, VA: Hero Books, 1984.
- Handel, Michael. "Strategy and Technological Change." Lecture. U.S. Naval War College, Newport, RI: 6 January 1992.
- Historical Section of the Committee of Imperial Defence. Official History (Naval and Military) of the Russo-Japanese War, Vol. I. London: Harrison and Sons, 1910.
- Hoffman, Mark S. The World Almanac and Book of Facts 1992. New York: Phasor Books, 1991.
- Holder, L.D. "A New Day for Operational Art," Army, March 1985, pp. 22-32.
- Howard, Michael. "The Forgotten Dimensions of Strategy." Foreign Affairs Summer 1979, pp. 976-978.
- War in European History. London: Oxford University Press, 1976.
- Howard, Michael and Paret, Peter., eds. On War. Princeton: Princeton University Press, 1976.
- Luttwak, Edward N., ed. Strategy and History. New Brunswick, NJ: Transaction, 1985.
- Sherman, W.T. Memoirs of Gen. W.T. Sherman, Vol. II. 4th ed. New York: Charles L. Webster, 1891.
- Showalter, Dennis E. Railroads and Rifles. Hamden, CT: Shoe String Press, 1976.
- Stone, Norman., ed. The Times Atlas of World History. 3rd ed. Maplewood, NJ: Hammond, 1989.

Strategic Studies Institute, The Operational Art of Warfare Across the Spectrum of Conflict. U.S. Army War College, 1987.

Van Creveld, Martin. Command in War. Cambridge, MA: Harvard University Press, 1985.

Weber, Thomas. The Northern Railroads in the Civil War 1861-1865. New York: King's Crown Press, 1952.

Westwood, J.N. The Illustrated History of the Russo-Japanese War. London: Sidgwick & Jackson, 1973.